

# **1000W Power Inverter**

## **OWNER'S MANUAL**

**Model number-4571001**

# **NPower<sup>TM</sup>**



TO REDUCE THE RISK OF INJURY, USER MUST READ AND UNDERSTAND THIS INSTRUCTIONAL MANUAL. THIS MANUAL CONTAINS IMPORTANT INFORMATION REGARDING THE OPERATION AND WARRANTY OF THIS PRODUCT. PLEASE RETAIN FOR FUTURE REFERENCE.

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## 1. Introduction

Thank you for purchasing the NPower 1000W Power Inverter, a high performance solution to use household power while on the road. Connected to the 12V volt output in your vehicle, the inverter efficiently and reliably supplies 115V/60Hz AC power with 1000W continuous output power for a wide variety of loads, such as all kinds of jacklights, TV sets, audio/video systems and electromotion tools with power consumption under 1000 watts. It has been tested and found to be in line with the requirement of ETL certification. With proper care and appropriate usage, it will give you years of dependable service in your car, truck, RV and boat.

The inverter has the safety features such as over input voltage shut off, low input voltage shut off, low input voltage alarm, low voltage turn-off resume, over heating shut off, overload shut off, short circuit protection. The unit is not designed to be waterproof. It applies to the ambient temperature for 32°F~104°F (0°C~40°C) .

## 2. Important Safety Information

For safe and optimum performance, the inverter must be installed and used properly. Carefully read and follow the guidelines in this guide and give special attention to the **CAUTION** and **WARNING** statements.

 **CAUTION:** Instructions provide information that could damage your inverter or equipment connected to it!

 **WARNING:** Instructions provide information on conditions that could result in personal injury or loss of life!

 **Warning!**

Shock hazard! Keep away from children!

 **Warning!**

The inverter produces the same potentially lethal AC power as normal household outlets. It is suggested that you treat it as normal AC outlet.

## **Warning!**

The case to the unit may become very warm under high power operation reaching 140°F(60°C). Be sure that there is at least 2" (5cm) of unobstructed air space around the entire surface of the inverter at all times. During use, do not place materials that could be damaged by heat near the unit.

## **Warning!**

Do not operate the unit near flammable fumes or gases such as the cabin of a gasoline power boat, or near propane tanks.

## **Warning!**

Do not operate the unit in an enclosed area that contains automotive type lead-acid batteries. This type of battery emits explosive hydrogen gas which can be ignited by sparks.

## **Warning!**

Always make all AC connections before making DC connections or the components built into the inverter can become energized producing an electrical shock hazard. Never work on the AC wiring without first physically disconnecting the DC connections.

## **Warning!**

Do not connect the unit to live AC power circuits or there would be damage to the inverter. Do not connect any AC device which has its neutral conductor connected to ground to the unit.

## **Caution!**

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## **Caution!**

Some chargers for small nickel-cadmium batteries can be damaged if connected to the unit. Do not use the unit on the following items:

- Small battery-operated appliances such as flashlights, razors and nightlights those can be plugged directly into an AC outlet to recharge.
- Certain battery chargers for battery packs used in hand power tools. These chargers will have a warning label indicating that dangerous voltages are present at the battery terminals.

## **Caution!**

Connect the unit to batteries with a normal output of 12V DC only. As 6V batteries voltage is too low, and a 24V battery voltage is too high which will damage the unit.

## **Additional Safety Guidelines!**

Do not insert any foreign objects into the unit outlets, vents or fan openings.

Do not expose the unit to rain, water or any other liquid.

Do not connect the unit to any utility power distribution systems or branch circuits.

Do not use the inverter in temperatures over 104°F(40°C) or under 32°F(0°C).

**Failure to follow these safety guidelines will result in personal injury and/or the damage to the unit. It may also void the warranty.**

## **3. Protective Features**

### **Over Input Voltage Shut Off**

When the 12 volt DC power supply voltage exceeds  $15.5\pm0.5$  volts, the inverter will automatically shut down, and the digital display showing "OUP".

### **Low Input Voltage Shut Off**

When the 12 volt DC power supply voltage drops below  $10.5\pm0.3$  volts, the inverter will automatically shut down, and the digital display showing "LUP".

### **Low Input Voltage Alarm**

When the 12 volt DC power supply voltage drops below  $11\pm0.3$ volts, an audible alarm will sound, and the digital display showing “LUP”.

### **Over Heating Shut Off**

When the internal temperature exceeds the regulated temperature due to the increase of surrounding air temperature, the inverter will automatically shut down, and the digital display showing “LCP”.

When the internal temperature drops below the surrounding air temperature, the inverter will automatically return to normal operation.

### **Overload Shut Off**

When the starting power exceeds the rated power, the inverter will automatically shut down, and the digital display showing “OLP”.

When being in over current protection state, the inverter can't automatically restore normal operation, but return to normal operation by using manual switch.

### **Short Circuit Protection**

This inverter is equipped with multiple internal fuses. When it is in short circuit state, the unit will switch to protective mode, and the digital display showing “OPP”.

## **4. Features**



**Figure 1**

**1.AC Outlets**— They allow you to plug in 110V AC products with a total continuous of 1000W or less.

**2.Digital Readout**—it indicates the power and DC voltages. The allowed power tolerance is 15% (with loads of over 200W), and the allowed voltage tolerance is +/-0.2V (no load).

**3.Button Power Switch**— Connect the inverter to the DC power and press down the button power switch, the AC power is available.

**4.Port for Remote Control**—Connect the remote control switch and press down the switch, the remote control function acts.(remote control switch is not included.)

**5.USB Port**— Offer 5V power to USB equipment.

**6.Red LED Indicator**— Indicates that the consumption of the loads is under 1000 W, and the digital display showing output power loads in watts.

**7.Yellow LED Indicator** — When the power exceeds 1000W, the yellow LED indicator lights, and the digital display showing output power loads in kilowatts.

**8.Green LED Indicator**— Indicates the digital display is showing DC input voltage.

**9.Positive DC terminal**— Connect the red end of the DC power cord to it.

**10.Negative DC terminal**— Connect the black end of the DC power cord to it.

**11.Cooling Fan and Ventilation Openings**— The high speed cooling fan protects the inverter from over-heating. And the ventilation openings should be kept clear!

## 5. Installation

The unit must be operated in an area that meets the following requirements in order to operate safely and provide optimum performance:

	Description
Dry	Don't allow water or other liquids to drop or splash on the unit.
Cool	Ambient air temperature should be between 32°F and 104°F (0°C~40°C) (the cooler the better within this range) .
Ventilated	Leave at least 2" (5cm) of clearance around the unit for airflow. Ensure that the ventilation openings are not obstructed.
Safe	Do not operate the unit in the same compartment as batteries or in any compartment capable of storing flammable liquids like gasoline.
Clean	Do not operate the unit in an area that is prone to dirt, dust or debris. Especially important if used in a work environment.

Your 1000W Power Inverter supplies 1000 watts of max continuous power with 2000 watts of surge power. When you turn on an appliance or a tool that operates using a motor or tubes, it requires an initial surge of power to start up. This surge of power is referred to as the "starting load" or "peak load". Once started, the tool or appliance requires less power to continue to operate. This is referred to as the "continuous load" in terms of power requirements. You will need to determine how much power your tool or appliance requires to start up and its continued running power requirements.

The inverter should be connected to your vehicle's 12 V power supply with the DC cables. We recommend that the equipment or appliance switch be in the "OFF" position prior to plugging into the AC receptacle of the inverter.

## **Warning!**

Shock hazard! Keep away from children!

Please be sure to put off some metal jewelry, such as rings, bracelets and watches etc. in case any accident would happen!

### **Connecting the inverter:**

- 1) Place the inverter on a flat surface, such as on the vehicle floor.
- 2) Please make sure that the inverter is shut down.
- 3) Attach the ring type connector marked with red to the positive (+) DC terminal on the power inverter, and attach the ring connector marked with black to the negative (-) DC terminal.

## **Caution!**

**Reverse the polarity will arouse blown fuse or damage to the inverter, which may also void the warranty.**

- 4) Tighten the nut on each DC terminal by hand until it is snug. Do not over-tighten.
- 5) Connect the AC equipments.
- 6) When the power inverter is not in use, disconnect the DC cable clips from the battery to prevent slight discharge of battery.

**Note: This product does not include DC battery cables. DC battery cables sold separately**

## **Caution!**

A loose connection will cause the voltage to drop and may cause the cables to overheat, resulting in equipment damage or fire.

## **6. Operating Instructions**

- 1) When properly connected to a 12V outlet or battery, turning on the inverter, will illuminate the green LED light, and deliver AC power to the outlet(s).
- 2) Plug the AC product(s) you wish to operate into the AC outlet(s)
- 3) Switch them on, one at a time.

### **⚠ Caution!**

**If there are one more AC products connecting to the inverter, turn on the larger power product first.**

- 4) The unit will operate from input voltages ranging from 11.0V to 15.0V DC

As the battery is used, its voltage begins to fall. When the inverter senses that the voltage at its DC input has dropped to the range of 10.7~11.3V DC, an audible alarm sounds. This allows time for computers or other sensitive devices to be shut down. If the audible alarm is ignored, the inverter will automatically shut down when the voltage dropped to the range of 10.2~10.8V DC. The red LED indicator illuminates, indicating a fault. This protects the battery from being over-discharged. Turn off any devices that the inverter is powering.

When input voltage rose to 11.7V~12.3V DC, inverter restores normal.

### **⚠ Caution!**

Most vehicle batteries are designed to provide short period of very high current for starting the engine. They are not designed for a constant “deep discharge”. Constantly operating the unit from a vehicle battery until the low voltage shut off will affect the life of the battery. If you are operating electrical products for extended periods of time, you should consider connecting the unit to a separate deep discharge battery.

Should a defective battery charging system cause the battery voltage to rise to the range of 15.0V~16.0VDC, the inverter automatically shuts down; and the red LED lights.

 **Caution!**

**Although the inverter incorporates protection against over-voltage, it may still be damaged if the input voltage exceeds 16 volts.**

If an AC product rated higher than 1000W (or which draws excessive surge power) is connected, the inverter will shut down. The red LED light will light. The unit will shut down automatically if the inverter exceeds a safe operating temperature due to insufficient ventilation or a high-temperature environment; and the red LED indicator lights.

The cooling fan is designed with thermo-controlled technology.

 **Caution!**

Operating time will vary depending on the charge level of the battery, its capacity and the power level drawn by the particular AC load. With a typical vehicle battery and a 1000-watt load, an operating time of 1 hour or more can be expected.

When using a vehicle battery as a power source, it is strongly recommended to start the vehicle every hour to recharge the battery before its capacity drops too low. The inverter can operate while the engine is running, but the normal voltage drop that occurs during starting of the engine may trigger the inverter's low voltage shutdown feature.

 **Caution!**

Because the power inverter draws less than 0.6A with its turning on and with no AC product connected, it has minimal impact on battery operating times.

## 7. Troubleshooting

PROBLEM	CAUSE	SOLUTION
No power, no indicator.	Battery is defective	Replace battery
	Blown fuse	Check and replace fuse
	Lose cable connections	Check the connection to the battery. Tighten as required.
Unit is shutdown with display showing "OLP"	AC products connected are rated at more than 1000W; overload shutdown has occurred	Reduce load, use a product with power rating less than 1000W.
	AC products are rated less than 1000W, but high starting surge has caused overload shutdown.	Use a product with starting surge power within the inverter's capability ( $\leq 2000W$ ).
shutdown with display showing "LUP"	The voltage input is too low (alarm is sounding).	charge the battery
shutdown with display showing "OPP"	Inverter is short circuit and has shut down.	Reset to normal operation by using manual switch
Unit is shutdown with display showing "OCP"	Inverter is overheated due to poor ventilation and has shut down.	Unplug inverter from DC socket and allow to be cooled for 15 minutes. Remove objects covering unit. Move the inverter to a cooler place. Reduce load if continuous operation is required. Restart.
runs small loads but not large ones.	Low voltage battery	Charge the battery

Water entered	Water entered the unit	Disconnect the inverter and wipe immediately with a dry cloth, or permanent damage can occur with liquid ingress.
Alarm is sounding	Low voltage shutdown or thermal shutdown has occurred.	Shorten cables or use heavier cables. Recharge battery. Allow unit to cool. Improve air circulation around unit. Locate unit to a cooler environment. Reduce load if continuous operation is required.
Measured inverter output is too low	Standard "average-reading" AC voltmeter used to measure output voltage, resulting in an apparent reading 5 to 15V too low.	Inverter's "modified sine wave" output requires "true RMS" voltmeter for accurate measurements.
	Battery voltage is too low.	Recharge battery.
Battery run time is less than expected	AC product power consumption is higher than rated.	Use a larger battery to make up for increased power requirement.
	Battery is old or properly defective.	Replace battery.
	Battery is not being properly charged.	Some chargers are not able to fully recharge a battery. Make sure you use a powerful charger.
	Power dissipation in DC cables.	Use shorter/heavier DC cables.

## 8.Specifications

Specifications are subject to change without notice.

### AC Power Output

AC output voltage	105V~125V AC
Maximum AC output power	1000W
Maximum AC output surge power	2000W
AC output frequency(nominal)	58~62Hz
AC output waveform	Modified sine wave

### USB Power Output

AC output frequency(nominal)	5 V DC
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### DC Power Specifications

DC input voltage range	12.8~13.2V DC
Battery drain with no AC load	0. 6A (at a 12V input)
Low battery alarm trigger point	11±0.3VDC
Low battery shutdown point (nominal)	10.5±0.3VDC
Low battery shutdown resume point (nominal)	12.0±0.3VDC
High battery shutdown point (nominal)	15.5±0.5VDC
Fuse	25A fuse×6
Efficiency(maximum)	85%

### Physical specifications

Ambient operating temperature range	32°F - 104°F (0°C - 40°C)
Dimensions (L×W×H)	9.5×6.5×3.56 in (241×164×90mm)
Weight	4.64 lb(2100g)

## **9. Warranty**

### **One Year Limited Warranty Program**

NPower warrants this product for one year limited against any defects in materials or workmanship. The defective products will be replaced and repaired at no charge in either of one year.

This warranty lasts for 12 months from the date of purchase at the point of sale to you. This warranty does not apply where the product has been misused, improperly installed, physically damaged or altered, either internally or externally, or damaged from improper use.

NPower will repair or replace the defective product free of charge. Proof of purchase may be required. Warranty term is not extended if NPower repairs or replaces a product. NPower owns all parts removed from repaired products.

To qualify for the warranty, make sure the product has not been disassembled or modified without the prior authorization. If you require warranty service with your product, please return it to the place of purchase along with a copy of your dated proof of purchase or call customer service at 800-222-5381 for details.